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ABSTRACT

Part 1 of this paper deals with the major philosophies of elementary industrial arts. Five philosophy groupings are identified: Industrial Arts (1) as a means of developing habits, attitudes, problem solving abilities, and interests, (2) as a means to meet developmental needs of children, (3) as a program for involving students in making objects for the inherent value of the objects themselves, (4) as a vehicle through which children acquire occupational awareness, and (5) as a means of correlating and enriching the elementary curriculum. The values and benefits of an elementary industrial arts program--satisfying needs, clarifying and enriching and broadening concepts, applying knowledge, increasing desire to learn, developing problem solving skills, producing three-dimensional objects, increasing understanding of industry and technology, and developing desired behaviors and attitudes--are enumerated and discussed in part 2. Included in part 3 is a listing of tools, materials, and construction activities which were identified in a study of 20 career education programs as being most effective. (TM)

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Elementary Industrial Arts--Philosophies, Values, and Typical Programs

F. Milton Miller

OCT 11 '76

My presentation will be divided into the following three parts:

First: Five major philosophies of Elementary Industrial Arts

Second: Eight values to be derived by children who experience an Elementary Industrial Arts program.

Third: Examples of typical programs in Elementary Industrial Arts today.

The present program of industrial arts, as it exists in the elementary classroom of the 1970's, is the product of an evolutionary process through which elementary and industrial arts educators have attempted to interpret the philosophy of many of the early proponents of the activity-centered school. As a result, a multi-faceted program of elementary school industrial arts has evolved.

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Major Philosophies

The myriad of programs which currently exist can be categorized into five major groups based on the primary purpose which the program seeks to serve.

A. Industrial Arts as a means of developing habits, attitudes, problem-solving, and interests.

B. Industrial Arts designed to meet developmental needs of children.

C. Industrial Arts as a program involving students in making objects for the inherent value of the objects themselves.

D. Industrial Arts as a vehicle through which children acquire occupational awareness.

E. Industrial Arts as a means of correlating and enriching the elementary curriculum.

Values or Benefits

Some of the most relevant values or benefits to be derived by children who experience a program of elementary school industrial arts are as follows:

1. Providing a means for satisfying the needs young children have to build, to construct, and to express themselves creatively. When children achieve success in a tangible form they build confidence and acquire a measure of self-realization.

2. Clarifying, enriching, and broadening of concepts through first-hand experiences. The teacher is able to bring several of the senses to bear in a given learning situation, increasing the effectiveness of the learning situation.

3. Applying knowledge in a natural and realistic setting. The activities of planning, measuring, calculating, describing, drawing,

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designing, and others inherent in construction must utilize facts and skills gained in other phases of the elementary curriculum.

4. Developing an increased desire or drive to learn. Children may be highly motivated to read, discuss, and secure information needed to construct things that will be put to immediate use.
5. Developing problem-solving skills. Constructional activities give a realistic flavor to problem-solving which makes it meaningful to young children.
6. Producing three-dimensional objects for observation and for use in dramatic plays.
7. Increasing understanding of the ways in which industry and technology affect the production of consumer goods. Through direct study of and experience with constructional processes, the child can better comprehend the processes of industrial production as well as materials of production. The "world of work" takes on a broader and more realistic meaning.
8. Development of certain behaviors, attitudes, and appreciations that have no direct relationship to the object being constructed. For example, to stick to a task until it is finished, to put tools and materials away for later use, to accept and profit from suggestions, and to assume responsibilities for a task that is important to the group as well as to the individual.

Career Education

The present emphasis on career education by contemporary educational leaders provides a natural frame of reference for elementary school industrial

arts. The multi-faceted program of elementary school industrial arts seeks to achieve many of the same goals which have been specified for career education at the elementary school level. Career education at the elementary level is an effort to help children emerge from the world of fantasy about work toward the reality of understanding themselves and the nature of their future life's work. It is a time for building career awareness. Elementary school industrial arts activities provide experiences that make learning relevant by illustrating ways in which people use work for self-support and self-respect, means by which job tasks are accomplished, and the relationship of productivity to a variety of occupations. A variety of ways in which people prepare for jobs should be examined to reveal the role school subjects play in helping people become occupationally competent.

To identify the tools, materials, and constructional activities that can best be utilized in developing "Career Awareness," a national research project was undertaken at the University of Missouri-Columbia to study twenty existing career education programs that utilized constructional activities. The study was designed to isolate those tools, materials, and constructional activities that had proven to be most effective.

Data gathered from the tool information form, revealed 212 different tools were being used in the various projects. There were 27 tools that were used by more than 50% of the projects. The tools were placed into categories as follows:

Measuring and Layout

Yard sticks

Bench Rule

Framing Square

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Try-Square

Cutting Tools

Cross-Cut Saw

Back Saw

Block Plane

Half-Round File

X-acto Knife

Hole Punch

Hack Saw

Tin Snips

Scissors

Drilling and Boring

Hand Drill

Bits

Brace

Auger Bits

Assembly

Wooden Mallet

Claw Hammer (7 and 13 oz.)

C-Clamps

Screwdrivers (Regular and Phillips)

Slip-Joint Pliers

Portable Tool Carts

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The material utilization instrument indicated there were 251 different materials being utilized with 14 being used by more than 50% of the projects. The materials were placed in the following categories:

Wood

- Fir plywood
- Pine
- Dowel rods

Paper Products

- Drawing paper
- Masking tape
- Poster board

Assembling

- Rubber cement
- Common nails
- Finish nails

Finishing

- Latex paint
- Paint brushes
- Abrasive paper

Other

- Coping Saw Blades
- Wool Yarn

Constructional activities listed by the various projects ranged from the construction of minature gas-powered rockets to growth charts. Selected examples from the various projects include:

Mass-production of bird houses

Development of power systems

Post-office

Tangram puzzles

Model cities

Making of paper

Letter holders

Riverboats

Tic-tac-toe game

Bumper stickers

It can be concluded from this and other investigations that a great variety of "hands-on" constructional activities are being carried out at the elementary school level with a high degree of success with a minimum expenditure in tools and materials.

Additional examples of elementary students involved in industrial arts activities are illustrated in the following slides.

(Selected slides of elementary students in action).

I believe that elementary school industrial arts will continue to expand as teachers and administrators seek ways to meet the needs of the individual students.

"End"

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